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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	) :	Examiner: Unassigned
SUE-KEN YAP	) :	Group Art Unit: Unassigned
Application No.: 09/737,749	) :	
Filed: December 18, 2000	) :	
For: CONTEXT SENSITIVE INFORMATION ACCESS ARTIFACTS	) :	March 8, 2001

The Commissioner for Patents
Washington, D.C. 20231

CLAIM TO PRIORITY

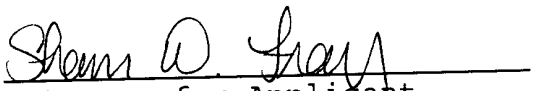
Applicant hereby claims priority under the International Convention and all rights to which he is entitled under 35 U.S.C. § 119 based upon the following Australian Priority Application:

PQ 4858	Australia	December 23, 1999.

A certified copy of the priority document is enclosed.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our address given below.

Respectfully submitted,



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AUSTRALIA

Patent Office
Canberra

I, KAY WARD, MANAGER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. PQ 4858 for a patent by CANON KABUSHIKI KAISHA filed on 23 December 1999.

WITNESS my hand this
Twentieth day of December 2000

K Ward

KAY WARD
ACTING MANAGER EXAMINATION
SUPPORT AND SALES

3

Appln. No.: 09/737,749
Filed: 12/18/00

S&F Ref: 485369

ORIGINAL

AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION FOR THE INVENTION ENTITLED:

Context Information Access Artifacts

Name and Address of Applicant:

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Name of Inventor:

Sue-Ken Yap

This invention is best described in the following statement:

different rooms of the same building may require a computer application to use different context information.

It is an object of the present invention to substantially overcome, or at least ameliorate, one or more disadvantages of existing arrangements.

Disclosure of the Invention

According to one aspect of the present invention there is provided a context sensitive device comprising:

a card portion having a surface onto which are formed a plurality of user interpretable icons; and

electronic apparatus attached to said card portion, said apparatus comprising:

a memory in which are retained at least a plurality of character strings including contextual information, each of said character strings being associated with a corresponding one of said icons;

processor means coupled to said memory means; and

communication means for coupling said processor means to a reading device configured to facilitate reading said context sensitive device,

wherein said processor means is configured to relate reading signals generated from a user selection of at least one of said icons and received via said communication means with at least one of said retained character strings to thus transmit an output signal for indicating a desired service based on said contextual information.

According to another aspect of the present invention there is provided a method of using a context sensitive device to enable performance of a desired service, said context sensitive device comprising:

a card portion having a surface onto which are formed a plurality of user interpretable icons; and

electronic apparatus attached to said card portion, said apparatus comprising:

wherein said processor means is configured to transmit an output signal including a portion of said contextual information, for indicating a desired service based on said contextual information.

According to still another aspect of the present invention there is provided a context sensitive device comprising:

a card portion having a surface onto which are formed a plurality of user interpretable icons;

a memory in which are retained at least a plurality of character strings including contextual information, each of said character strings being associated with a corresponding one of said icons;

communication means for coupling said memory to a processor means of a reading device configured to facilitate reading said context sensitive device,

wherein said processor means is configured to relate reading signals generated from a user selection of at least one of said icons and received via said communication means with at least one of said retained character strings to thus transmit an output signal for indicating a desired service based on said contextual information.

Brief Description of the Drawings

A number of preferred embodiments of the present invention will now be described with reference to the drawings, in which:

Fig. 1 is a plan view of a smart-card configured for use as a context sensitive smart-card in accordance with the preferred embodiment;

Fig. 2 is a vertical cross-section along the line II-II of Fig. 1;

Figs. 3A and 3B are front elevational and vertical sections respectively of a smart-card and associated reader;

Fig. 4 is a plan view of a smart-card in accordance with a second embodiment of the present invention;

functions. The computer chip 106 is electrically coupled 108 to a number of external contacts 110 that provide for communication of data between the smart-card 101 and a smart-card reader (to be described). Connections to the chip 106 are formed by communication connections 110, seen in Fig. 2, arranged at an outer surface of the card 101.

The user interface surface 112 has provided thereon a number of graphical icons, a first group of which depict an alphanumeric keypad 114 in a fashion similar to keypads known in the art of telecommunications and like arrangements. A number of other user or service provider (eg. a telecommunications company) customisable icons 120-128 can also be provided. The smart-card 101 is preferably pre-programmed by a user. Alternatively, the smart-card 101 is pre-programmed by a service provider and supplied to the user for a fee. The icons 114-128 configured upon the surface 112 are each associated with an x-y co-ordinate mapping retained within the computer chip 106 and which provides for interpretation of a user selection of any one of the icons 114-128 (to be described).

As seen from Figs. 3A and 3B, the smart-card 101 is inserted into a reader 302 such that a transparent touch sensitive panel 356 overlies the printed icons on the surface 112. An electrical connection is made at 358 to the chip 106 whereby an electronics module 360 of the reader 302 can relate a touching of the panel 356 with the underlying icon 114-128 through interpretation of the data transferred via the chip 106. A signal 362 output from the reader 302 may be used to provide for implementation of a service, via a base station 903, as seen in Fig. 9, depending on context information received by the base station 903, in accordance with the smart-card 101 of the embodiments. The smart-card reader 302 is preferably connected to the base station 903 via a two-way digital communications link such as a Radio Frequency (RF) Link. However, any known communications link (eg. infra-red) can be used with the embodiments.

Fig. 11 is a flow chart showing the sequence of communications that would result between the reader 302 and another base station (not illustrated) which is located in the U.S.A., if the user then took the smart-card 401 and smart-card reader 302 to New York, U.S.A., and again pressed the icon 403 labelled Emergency. The process begins at step 1101, where the same command as above is sent to the base station (not illustrated) which is located in the U.S.A. At the next step 1103, the base station checks to see if the country code is correct (ie. country = 1). If the country code is incorrect the U.S.A. located base station would indicate to the reader 302, at step 1105, that the reader 302 should resend the command with the correct country code by sending:

country=1 resend.

The process continues at step 1107, where the reader 302 can use the new country code (ie. country=1) to look up the correct data for the requested service by searching the table stored in the smart-card 401. The process then returns to step 1101, where the reader 302 sends the following command to the U.S. base station:

country=1 service?Emergency;number911.

The process concludes at step 1109, where the U.S.A. located base station dials the emergency number (ie. 911) and the reader 302 preferably stores the correct country code (ie. country=1) in a memory until the country code is contradicted by another base station. Thus, the service can be represented on the card 401 as being location independent.

In a second embodiment of the present invention a user can be provided with a photocopier card in the form of the smart-card 101 which has been pre-programmed with a table including settings for various copiers in a building. The copiers preferably include a built in smart-card reader in the form of the smart-card reader 302, and a processor (not illustrated). The smart-card 101 of the second embodiment includes an icon labelled as "Copy" (not illustrated). As an example, the user can use the card 101 of the second

copier=A copies?1;collating;stapling.

The process continues at the next step 603, where the copier B checks to see if the copier code is correct (ie. copier = B). The process continues at the next step 605, where if the copier code is incorrect, copier B requests a change of context from the smart-card reader 302 mounted on copier B by sending the following command:

copier=B resend.

At the next step 607, the reader of copier B can use the new copier code (ie. copier = B) to look up the correct data for the copier by searching the table stored in the smart-card 101 of the second embodiment.

The process then returns to step 601, where the reader 302 mounted on copier B sends the following command to the processor included in copier B:

copier=B copies?1;double-sided.

The process concludes at step 609, where copier B supplies the correct double-sided photocopies.

In a third embodiment of the present invention a user is provided with a card in the form of the smart-card 101, which has been pre-programmed to turn on lights in different rooms in a home. The lighting combinations for the different rooms may differ and are thus included in a table stored in the memory of the smart-card 101, as discussed above. The smart-card 101 of the third embodiment has an icon (not illustrated) for each of the different rooms. A user inserts the smart-card 101 into the reader 302 and merely selects the icon for the respective room which results in the reader 302 searching the table of the third embodiment and a signal being sent to an electronic receiver (not illustrated), via a base station in the form of the base station 903. Subsequently, the lights in the respective room are switched on.

In a fourth embodiment of the present invention a user is provided with a card in the form of the smart-card 101, which has been pre-programmed to select different

other forms of matching can be used. For example, bit matching can be used where a string of bits stored on the smart card 101, and representing the contextual information, can be matched with a request from a card reader sent in the form of a string of bits. Further, face matching, which is known in the art *per se*, can be used where a face matching algorithm is utilised to match the contextual information stored on the smart card 101 with a request from a card reader.

The smart-card 101 is preferably programmed by a user or service provider through a programming sequence depicted in the method of Fig. 5. The method of Fig. 5 is preferably practiced using a conventional general-purpose computer system 700, such as that shown in Figs. 7 and 8 wherein the processes of Fig. 5 may be implemented as software, such as an application program executing within the computer system 700. In particular, the steps of the method of Fig. 5 are effected by instructions in the software that are carried out by the computer system 700. The software may be divided into two separate parts; one part for carrying out the smart-card 101 programming method; and another part to manage the user interface between the latter and the user. The software may be stored in a computer readable medium, including the storage devices described below, for example. The software is loaded into the computer from the computer readable medium, and then executed by the computer. A computer readable medium having such software or computer program recorded on it is a computer program product. The use of the computer program product in the computer preferably effects an advantageous apparatus in accordance with the embodiments of the invention.

As seen in Fig. 8, the computer system 800 comprises a computer module 701, input devices such as a keyboard 702 and mouse 703, and output devices including a smart-card programmer 840 and a display device 714. Further, and as seen in Fig. 7, a Modulator-Demodulator (Modem) transceiver device 716 may be used by the computer module 701 for communicating to and from a communications network 720, for example

module 701 and another device, a computer readable card such as a PCMCIA card, and the Internet and Intranets including e-mail transmissions and information recorded on web-sites and the like. The foregoing is merely exemplary of relevant computer readable mediums. Other computer readable mediums may be practiced without departing from the scope and spirit of the invention.

The smart-card programmer 840 is configured to provide for both electronic programming of the computer chip 106 and also for the printing of the various icons 114-128 on to the surface 112 of the security access card 100.

Returning to Fig. 5, the programming process is now described. In process step 500, coordinates for a specified region are entered, while in parallel (or alternatively sequentially) information associated with the region in question is entered in process step 502. With reference to the emergency services telephone card 401, the coordinates of a button, icon or region are x-y coordinate measurements measured from convenient points, say a top left hand corner and bottom right corner of the card 401, while the command information associated with the icon or region is the telephone number for the particular emergency service. Once both these pieces of information are entered via the keyboard 702, they are loaded by the software via the smart-card programmer 840 into the smart-card memory in step 504. This information is stored in the smart-card memory as a member of a table, eg {TL, BR, "COMMAND"}. Thereafter in step 506, the programming process tests whether further information is to be programmed onto the card. In the event that further information is required, the programming process is directed back to process step 500 and 502 as shown by arrow 512. In the event, however, that the programming is complete, the programming process is directed to a process step 508, where the user or service provider is able to select appropriate graphics from the software application. These graphics are printed by means of the smart-card programmer 840 onto the smart-card upper surface. The smart-card programmer 840 uses the x-y

Further, the smart card 101 can take the form of a control card (not illustrated). The control card still includes a laminar substrate which bears control indicia. However, the storage means in this embodiment takes the form of a magnetic strip (not illustrated) formed along an edge of the reverse face of the control card. The mapping data and contextual information are stored on the magnetic strip in a conventional manner. A corresponding smart card reader device (not shown) for this embodiment includes a magnetic read head positioned at or adjacent an entrance to a corresponding reader receptacle. As the control card is slid into the reader receptacle, the mapping data and contextual information are automatically read from the magnetic strip by the magnetic read head. The control card is then operated as described in relation to the Fig. 1 embodiment.

Still further the smart card 101 can take the form of a card (not illustrated), in which the storage means takes the form of machine readable indicia. The machine readable indicia can take the form of a barcode (not illustrated) formed along an edge of the reverse face of the card . The mapping data and contextual information are suitably encoded, and then printed. A corresponding smart card reader (not shown) for this embodiment includes an optical read head positioned at or adjacent an entrance to an associated reader receptacle. As the card of this embodiment is slid into the reader receptacle, the mapping data is automatically read from the barcode by the optical read head. Alternatively, the barcode can be scanned using a barcode reader associated with the controller immediately prior to inserting the control template, or scanned by an internal barcode reader scanner once the control template has completely been inserted. The card is then operated as described in relation to the Fig. 1 embodiment. It will be appreciated that the position, orientation and encoding of the barcode can be altered to suit a particular application. Moreover, any other form of machine readable indicia can

The claims defining the invention are as follows:

1. A context sensitive device comprising:

a card portion having a surface onto which are formed a plurality of user interpretable icons; and

electronic apparatus attached to said card portion, said apparatus comprising:

a memory in which are retained at least a plurality of character strings including contextual information, each of said character strings being associated with a corresponding one of said icons;

processor means coupled to said memory means; and

communication means for coupling said processor means to a reading device configured to facilitate reading said context sensitive device,

wherein said processor means is configured to relate reading signals generated from a user selection of at least one of said icons and received via said communication means with at least one of said retained character strings to thus transmit an output signal for indicating a desired service based on said contextual information.

2. A context sensitive device according to claim 1, further comprising a transceiver apparatus for receiving and analysing said output signal in order to enable or reject a performance of said desired service based on said contextual information.

3. A context sensitive device according to claim 2, wherein said transceiver apparatus is coupled to said context sensitive device via a communications channel.

4. A context sensitive device according to any one of claims 1 to 3, wherein said performance of said desired service is enabled if a portion of contextual information

10. A context sensitive device according to claim 7, wherein said second set of icons each comprise an image.

11. A context sensitive device according to claim 7, wherein said reading signals comprise position information of said icons on said surface and said memory means and processor means together perform a mapping function to associate said position information with individuals characters of said strings to thereby interpret a user selection of a plurality of icons of said first set with one of said character strings.

12. A context sensitive device according to any one of claims 1 to 11, wherein said reading device comprises a touch panel configured to overly said surface and through which said icons are visible to said user.

12A. A context sensitive device according to any one of the preceding claims wherein said contextual information is related to position.

12B. A context sensitive device according to any one of the preceding claims wherein said contextual information is related to time.

13. A method of using a context sensitive device to enable performance of a desired service, said context sensitive device comprising:

a card portion having a surface onto which are formed a plurality of user interpretable icons; and

electronic apparatus attached to said card portion, said apparatus comprising:

16. The method according to any one of claims 13 to 15, wherein said performance of said desired service is enabled if said portion of contextual information matches an actual portion of contextual information, otherwise another transmission of said output signal is requested.

17. The method according to any one of claims 13 to 15, wherein said performance of said desired service is enabled if said portion of contextual information falls within a predetermined range, otherwise another transmission of said output signal is requested.

18. The method according to claim 16 or 17, comprising the further step of comparing said plurality of character strings with a subsequently received character string upon said request for another transmission of said output signal.

18A. The method according to claim 18, comprising the further step of transmitting another output signal based on said comparison of said plurality of character strings with said subsequently received character string.

19. A method according to any one of claims 13 to 18, wherein said reading device comprises a touch panel configured to overlay said surface and through which said icons are visible to said user.

19A. The method according to any one of claims 13 to 19, wherein said contextual information is related to position.

19B. The method according to any one of claims 13 to 19, wherein said contextual information is related to time.

24. A context sensitive device according to any one of claims 20 to 22, wherein said performance of said desired service is enabled if said portion of contextual information falls within a predetermined range, otherwise another transmission of said output signal is requested.

25. A context sensitive device according to any one of claims 23 or 24, wherein said processor means is configured to compare said plurality of character strings with a subsequently received character string upon said request for another transmission of said output signal.

26. A context sensitive device according to any one of claims 25, wherein said processor means is configured to transmit another output signal based on said comparison of said plurality of character strings with said subsequently received character string.

27. A context sensitive device according to any one of claims 20 to 26, wherein said contextual information is related to position.

28. A context sensitive device according to any one of claims 20 to 26, wherein said contextual information is related to time.

29. A context sensitive device comprising:

a card portion having a surface onto which are formed a plurality of user interpretable icons;

a memory in which are retained at least a plurality of character strings including contextual information, each of said character strings being associated with a corresponding one of said icons;

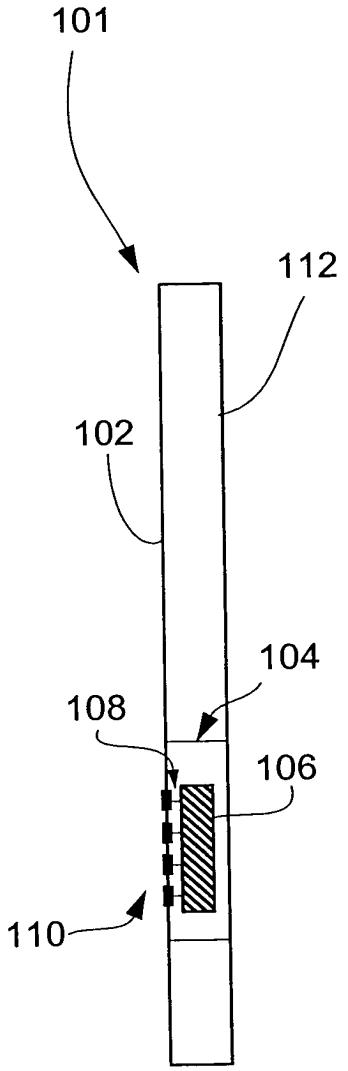
101
112
102
104
108
106
110

Fig. 2

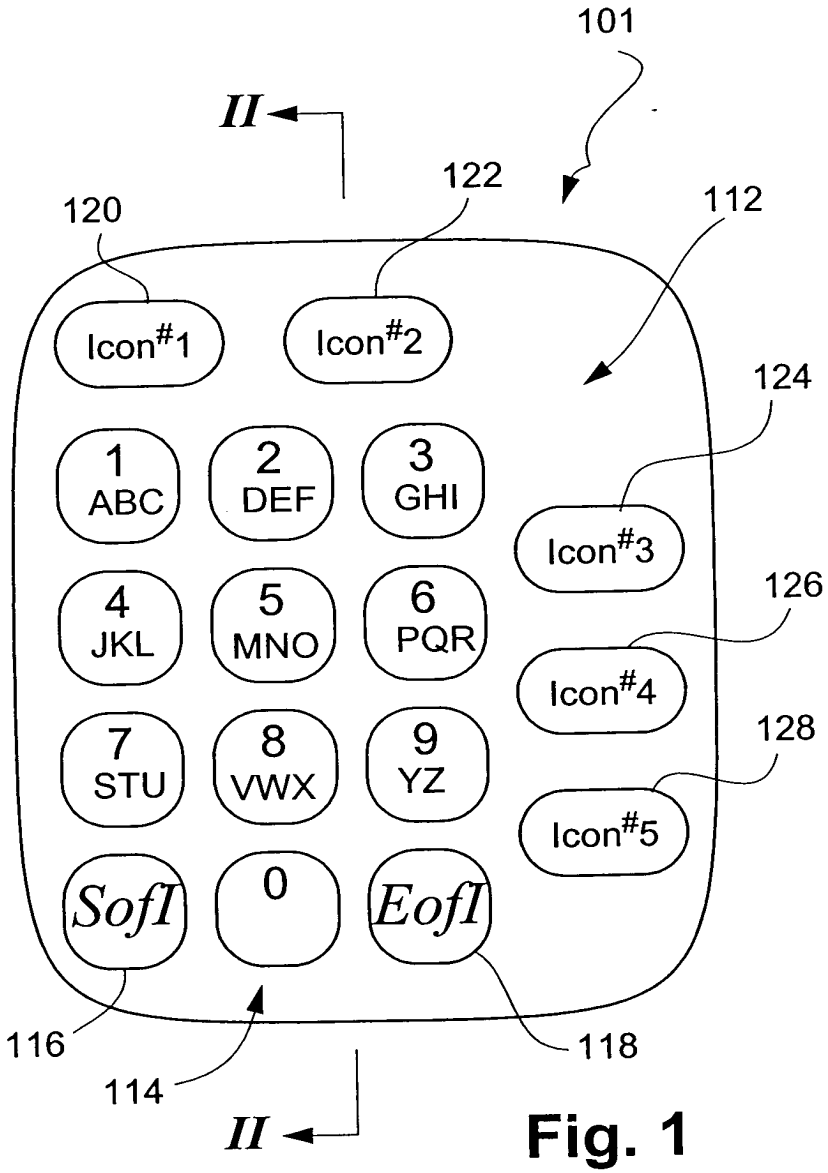
101
II
122
120
112
Icon#1
Icon#2
124
1 ABC
2 DEF
3 GHI
Icon#3
126
4 JKL
5 MNO
6 PQR
Icon#4
128
7 STU
8 VWX
9 YZ
Icon#5
SofI
0
EofI
116
114
118
II

Fig. 1

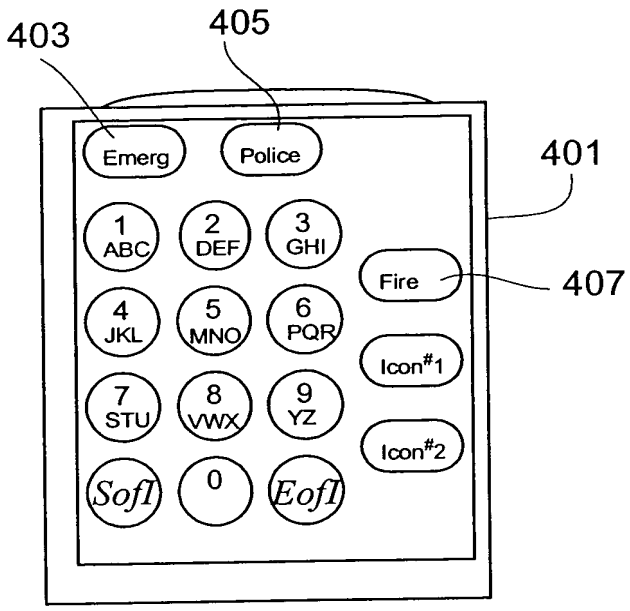
403
405
401
407
Emerg
Police
1 ABC
2 DEF
3 GHI
4 JKL
5 MNO
6 PQR
7 STU
8 VWX
9 YZ
SofI
0
EofI
Fire
Icon#1
Icon#2

Fig. 4

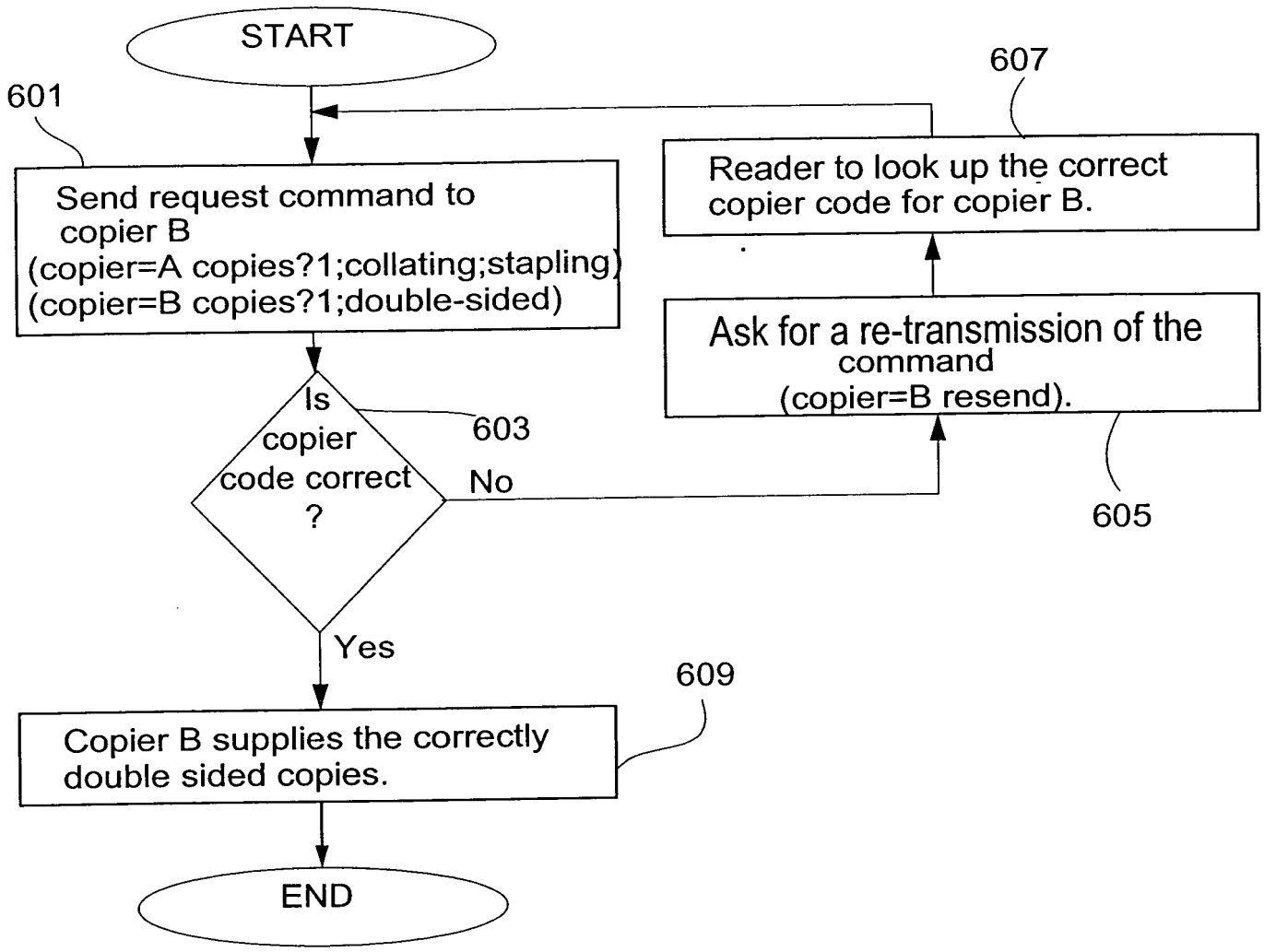
START
601
Send request command to copier B
(copier=A copies?1;collating;stapling)
(copier=B copies?1;double-sided)
Is copier code correct ?
603
No
Yes
607
Reader to look up the correct copier code for copier B.
Ask for a re-transmission of the command
(copier=B resend).
605
609
Copier B supplies the correctly double sided copies.
END

Fig. 6

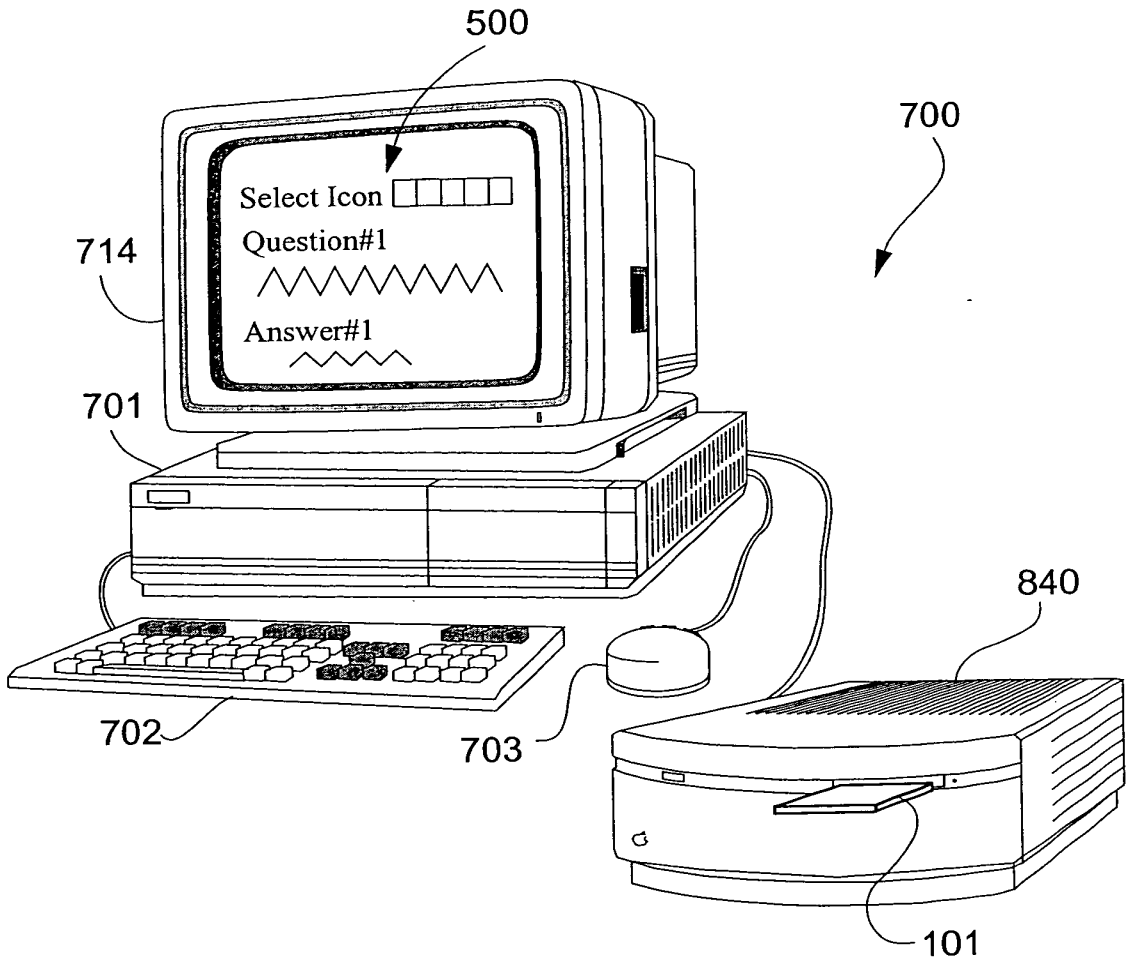
500
700
Select Icon
Question#1
Answer#1
714
701
840
702
703
101

Fig. 8

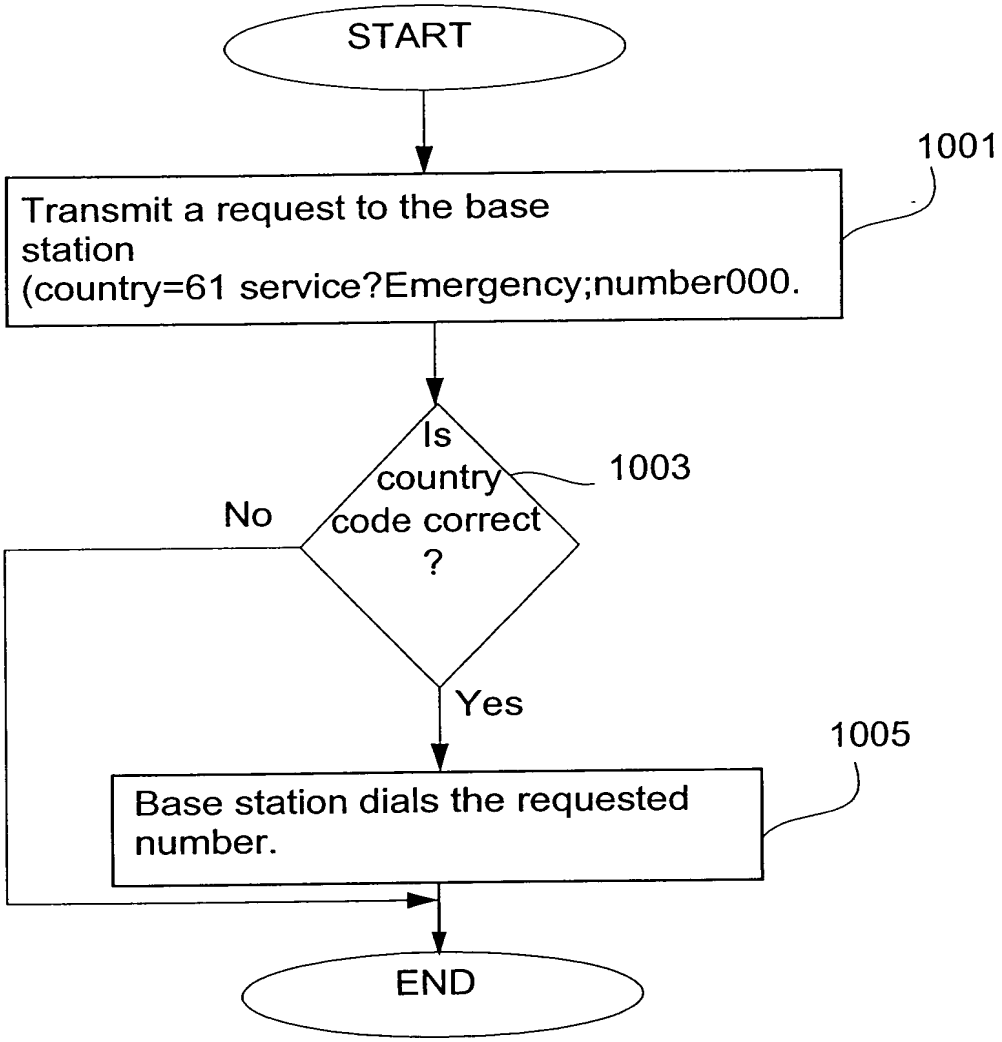
START
1001
Transmit a request to the base station (country=61 service?Emergency;number000.
Is country code correct ?
1003
No
Yes
1005
Base station dials the requested number.
END

Fig. 10

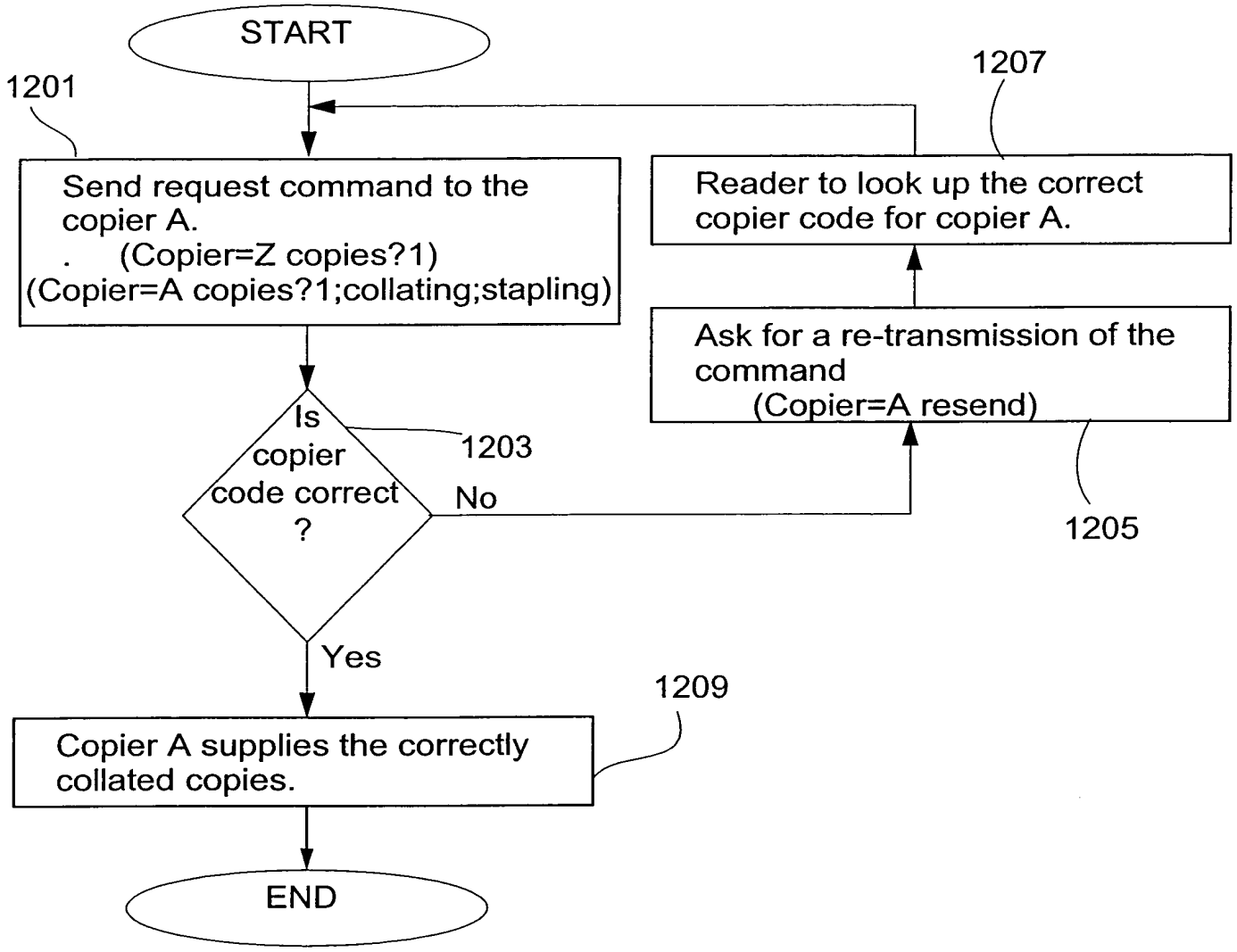
START
1201
Send request command to the copier A.
. (Copier=Z copies?1)
(Copier=A copies?1;collating;stapling)
Is copier code correct ?
1203
No
Yes
Ask for a re-transmission of the command
(Copier=A resend)
1205
Reader to look up the correct copier code for copier A.
1207
Copier A supplies the correctly collated copies.
1209
END

Fig. 12